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Author(s): David L. Sills

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The Environmental Movement and Its Critics

David L. Sills¹

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The history and nature of the new environmental movement in the United States are reviewed. Since understanding of a social movement is enhanced by learning the views and perceptions of outsiders, the continuing debate between the environmental movement and its critics is examined. First, disagreements over the nature and the severity of the so-called environmental crisis are described. Second, the ideological differences between environmentalists and their critics are reviewed, particularly their contrasting views of man, society, nature, and economic growth. Finally, the political critique of the movement is examined, with attention given to the composition of the membership, the alleged superficiality of its proposed solutions to environmental problems, and the alleged discrimination against both poor people in the United States and the poor nations.

KEY WORDS: ecology movement; environmental movement; ideology; social stratification.

INTRODUCTION

The past decade has witnessed a sharpened interest, among both the public and scientists, in man's environment — often but not always with reference to a so-called environmental crisis. There has been vastly increased attention in the mass media; it is reported that some 300 books on the environment, on ecology, and on pollution were published in the United States in 1972 alone (Sinclair, 1973, p. 176); there has been a dramatic increase both in the size of existing voluntary associations devoted to the improvement or preservation of some aspect of the environment and in the number of new ones; public information and educational activities have flourished; the use of litigation in order to achieve environmental goals has become common; and the terms "environment"

¹ Social Science Research Council, New York, New York.

and "ecology" have (often in a distorted form) become commonplace in popular culture.

The expression of public interest in the environment is demonstrated most clearly by participation in voluntary associations. Since voluntary associations are prevalent in the United States, public participation in environmental activities is highly institutionalized in this country. In fact, most analyses of these activities, including this one, are largely confined to developments in America.² [By "voluntary associations" I mean both such large national organizations as the Sierra Club, the National Audubon Society, and the Wilderness Society — all of whose memberships doubled or tripled in the years 1965-1969 (McEvoy, 1972, p. 221) — and the many thousands of local and *ad hoc* groups throughout the country. The total membership in these organizations cannot possibly be estimated with any accuracy, but on the basis of a study of environmental organizations conducted for the Environmental Protection Agency in the early 1970s, it is possible to conclude that the total was some 5-10 million (Zinger *et al.*, 1973, p. 364).] Citizen participation has also been strong in Japan, in the United Kingdom,³ and in several Western European countries. The UN Conference on the Human Environment, held in Stockholm in June 1972, stimulated much interest and debate about environmental problems and among environmental organizations in both developed and developing countries.⁴

These expressions of public interest and the activity of voluntary associations are generally referred to as "the environmental movement," although some writers call it "the ecology movement" (e.g., Munson, 1972) and others "the new conservation movement" (e.g., Robinson, 1969; Fleming, 1972). Students of the movement assign the label with some misgivings. As Sheldon Novick, editor of a major movement publication, *Environment*, published by the Scientists' Institute for Public Information, points out,

one of the most serious problems that faces anyone trying to grapple with "environment" issues is the difficulty of disentangling the various disparate ideas and movements which have been lumped together by the media as a "movement." (Novick, 1974, p. 2)

A basic distinction emerged in the early history of the movement: that between "preservationists," whose interest is in keeping the natural environment

²The literature describing and analyzing current attention to the environment is extensive and varied. Two excellent historical accounts are Fleming (1972) and Nash (1973). Statistical evidence that documents the recent upsurge of interest is reviewed in Hornback (1974), McEvoy (1972), Trop and Roos (1971), and Schnaiberg (1973a). Albrecht (1972), Morrison *et al.* (1972), and Schnaiberg (1973a) are sociological analyses of environmental activities that both review recent developments and attempt to interpret them. Morrison *et al.* (1974) is an extensive bibliography of writings on the social sciences and the environment.

³For environmental activities in Japan, see Reich and Huddle (1973), Bennett *et al.* (1973), Gallagher (1973), and Simcock (1972). Activities in the United Kingdom are described in Johnson (1973).

⁴For accounts of what happened in Stockholm, see Aaronson (1972) and Stone (1973). The title of the latter is *Did We Save the Earth at Stockholm?*

free from alteration by man, and "utilitarians," who believe that the natural environment should be "used wisely, governed carefully, and renewed properly" (Morrison *et al.*, 1972, p. 261). This division seems to have first developed in 1897, when two of the founders of the conservation movement, John Muir and Gifford Pinchot, who had once been close friends, split up over the issue of whether or not sheep (called "hoofed locusts" by Muir) should be allowed to graze in federal forest reserves (Nash, 1973, pp. 137-138). The division continues to the present; witness the bitter debates between David Brower, long the Executive Director of the Sierra Club, and Floyd E. Dominy, United States Commissioner of Reclamation, that are quoted extensively in John McPhee's *Encounters with the Archdruid* (1972, pp. 135-215).

The differences between preservationists and utilitarians cannot be overlooked. The anthropologist John W. Bennett has stated the problem in strong terms:

these groups are often as much opposed to each other as the critics may be to one or more of them. If this is true, then the "movement" is some kind of temporary historical coalescence of warring interests — which will, and already has, fallen apart. The "environmentalists" represented by the space planners and urban dreamers are the exact opposite of the "environmentalists" represented by the Sierra Club — it is the difference between people who want to remake the natural world in a human image of some kind and those who want to keep man out of it. This partial union, if there is any real union, of opposites is the crux of the whole problem, it seems to me. The critics are not really criticizing the "movement," they are criticizing some facet, some component, which they happen not to like for one reason or another. (Bennett, 1974, p. 1)

There is a related distinction that must be noted: that between voluntary associations and what the sociologist Denton Morrison and his colleagues (Morrison *et al.*, 1972, p. 267) term "institutional movement organizations" — local, state, and federal agencies; educational organizations; some commercial groups. For the most part, these authors believe, preservationists join such voluntary associations as the Sierra Club, the Wilderness Society, and the National Audubon Society, while utilitarianism is institutionalized in such agencies as the National Park Service, the Forest Service, the Soil Conservation Service, and their state and local counterparts. The Environmental Protection Agency is something of an anomaly in this context, since many of its leaders classify themselves as members of the environmental movement. For example, in a recent speech, Russell E. Train (1974, p. 11), the administrator of the EPA, in noting that "the environmental movement has often been characterized as filled mainly by dreamers and back-to-nature 'nuts,'" went on to say that "we are, to be sure, dreamers," and "we are demonstrating beyond any doubt how down-to-earth we really are."⁵

⁵This abbreviated historical analysis necessarily conceals much diversity. The geographer Daniel B. Luten (1973, pp. 10-11) has constructed an informative chart that presents the chronology of persons and events relevant to eight environmental issues, covering the period 1800 to 1970.

The environmental movement is also disparate in its political composition: it contains all shades of political opinion from the conservative right to the radical left. And it includes among its proposed solutions everything from industry-sponsored "Keep America Beautiful" campaigns to political and social revolutions.

It is important to keep these differences in mind and to try to identify (as critics often do not) what segment of the movement is being discussed. But it is also important to rise above these distinctions and for certain purposes to consider the environmental movement as an entity. In the first place, its adherents for the most part speak and act as if the movement existed — it is a reality to most participants, no matter how many other participants they personally would like to exclude. In the second place, it is a reality because its adherents — like the adherents of other social movements — seek to bring about similar changes in the social order. As the sociologists McCarthy and Zald (1973, p. 2) point out, "using the broadest and most inclusive definition, a social movement includes all who in any form support the general ideas of the movement."

Members of the environmental movement may be described in a sympathetic way, as Olson *et al.* (1973, p. 231) have done, as "ecofreaks," people who have an "intense, uncompromising, and moving devotion to a lovely natural environment." But they also have a program. They want to increase environmental awareness among the public; they want to restore and preserve air, water, and land quality; they want to relate man and society to the physical environment in a positive and creative rather than an exploitative way; they want, in short, to bring about radical changes in the production and consumption aspects of our life style. These are the ends; it is largely in the means for achieving these ends that divisions within the movement emerge.

In sharp contrast to the conservation movement that began at the turn of the century, the new environmental movement considers much of social and political life relevant to its purposes. Every aspect of the environment, not just wilderness areas and natural resources, is of concern to the movement, and the recent popularization of the basic principles of ecology has led to a much greater awareness of the interrelatedness of man and the natural world. Heightened awareness among leaders of the movement produces a sense of crisis: there is concern not only about shortages and esthetic degradations but also about the possibility of what some participants call "ecocatastrophes"⁶ — disastrous events that have a science fiction quality to them: changes in sea level, atmospheric inversions that require everyone to wear gas masks, ecological imbalances that destroy vegetation and make large areas uninhabitable, and so on.

There are a number of reasons why this new environmental movement emerged in the late 1960s. The testing of nuclear devices in the early 1960s and

⁶Michael Gerrard of the Council on the Environment of New York informs me that his interpretation of this new word is that, like "Armageddon," it is always singular.

the resulting fear of radioactive fallout made the public aware that science and technology could have detrimental effects on their lives. (Nuclear testing also led to an increase both in citizens' involvement in scientific and technical developments and in scientists' involvement in public affairs — the so-called scientists' movement. It also contributed to the emergence of the antiscience movement of the 1960s, if one can be said to have existed.) The concept of "system" — which has a long history in such fields as economics, chemistry, and biology — has been widely diffused throughout all the sciences (the biosystem; the social system; systems analysis; systems engineering), and this development certainly heightened sensitivity and receptivity to environmental ideas. The publication of Rachel Carson's *Silent Spring* (1962) introduced millions of people to the notion that an effective pesticide (DDT) could have far-reaching systemic effects on the environment. The civil rights and antiwar movements demonstrated the effectiveness both of an aroused college-age population and of new techniques for participating in social protest activities, such as sit-ins, mass demonstrations, marches, picketing, leafleting, and media contact (Schnaiberg, 1973a, p. 607). Earth Day 1970, often cited as a key event in the growth of the environmental movement, was a massive outpouring of rhetoric and symbolic activity (see Lowenthal, 1970a) for which the public had been well prepared.

In sharp contrast to many other social protest movements, the environmental movement has had a fair number of early successes. Internationally, the UN agreed first to convene a major conference of governmental and organizational representatives devoted to worldwide environmental concerns (held in Stockholm, June 1972) and then to establish an agency — the Environmental Secretariat, now located in Nairobi (far from the environmental battleground) — to look after environmental affairs. In the United States, the National Environmental Policy Act of 1969 and the Environmental Quality Improvement Act of 1970 were passed with surprisingly little opposition. These federal acts, and their state and local counterparts, require that many governmental and private initiatives be subjected to a review of their impact on the environment before they can be approved and carried out. The field of environmental law has been established both in many law schools and in legal practice. The concept of environment has been institutionalized in the educational system, in forms ranging from "environmental education" in the public schools to programs in the environmental sciences in major universities. A 1973 directory of such programs listed 1068 programs in 740 colleges and universities in 70 countries (Quigg, 1973). The manufacture of DDT, the SST, and automobiles without effective emission controls has been determined to be against the public interest, and the federal government has pledged through legislation in 1972 a policy of "no pollution discharge" into lakes and rivers by 1985 (Public Law 92-574). The recycling of trash has begun in many communities, and use of the no deposit—no return beverage bottle and the aluminum beverage can has been restricted in the states of Oregon and Vermont. In countless other ways, the movement has

influenced the major institutions of society and altered the behavior of many people, whether they realize it or not, whether they like it or not. Even the well-publicized setbacks of the environmental movement, particularly its failure to stop the nuclear detonation under the island of Amchitka in the Aleutians, the construction of the TransAlaska Pipeline, and the return to widespread coal burning in late 1973, served to focus public attention on environmental issues and thus in the long run may turn out to have been successes.

Impressive as this list of successes is, it cannot be accepted as adequate evidence of the effects of the environmental movement. In fact, the beneficial effects of the movement cannot be measured adequately by the establishment of organizations, the enactment of legislation, or the introduction of new content into the educational curriculum, since the movement's goals are generally long-term in nature. Their ultimate realization would be demonstrated either by the absence of negative consequences or by changes that are relatively difficult to measure (Schnaiberg, 1973b, p. 7). For example, the deterioration of the Hudson River seems to have been both halted and reversed in the past few years. Some changes in the river can be measured with fair precision; the improvement in the quality of life of those who live along the banks of the Hudson is both slower to take place and more difficult if not impossible to measure.

This paper reports the highlights of the continuing debate between participants in the environmental movement and their critics. The next section describes the methodological perspective that led to the study. Then follow sections on disagreements over the nature of the environmental problem, on the ideologies of both members and critics of the environmental movement, and on the political critique of the environmental movement. The goal is neither to defend the movement nor to attack it; rather, the aim is to contribute to an understanding of it.

STUDYING THE ENVIRONMENTAL MOVEMENT

How can such a diverse phenomenon as the environmental movement be studied? There are a number of methods: questionnaire and observational studies of participants; organizational analyses of individual environmental organizations and their members, particularly during periods of crisis or controversy; analyses of the content of movement publications; analyses of the course of legislation or the outcomes of controversies; and many others. I have chosen another approach: an analysis of the criticisms that are leveled against the movement. The rationale for this approach is the commonsense observation that people who are outside a social system, an institution, a movement — who are not caught up in the jargon or rhetoric or untested assumptions used by insiders — often observe features and functions to which insiders are blind. The goal is to understand the movement — its nature, its dynamics, its probable impact on society; the method is to learn as much as possible from its critics.

In the media coverage surrounding Earth Day 1970, the environment was frequently described as a "motherhood" issue: who could be against clean air and water and pleasant living surroundings, not to mention the very survival of the species? But as the program of the movement developed and moved beyond concern with merely cosmetic issues, beyond rhetoric about our fragile planet and our survival as a species, it has become clear that doing something about the environment involves substantial costs. Accordingly, many people are opposed to environmental measures that conflict with their own self-interest. Industrial managers resist changes in manufacturing techniques that will be troublesome and costly; land owners and land developers resist controls over their profit-seeking activities; and utility companies resist the efforts of environmentalists to control their methods of power production and transmission. It is widely believed that "the honeymoon is over," and if by "honeymoon" one means the extent of public interest, attention, and even societal consensus attendant on Earth Day 1970, evidence of a decline exists in many places. Hornback's (1974) extensive review of evidence for public support concludes that support built up between 1968 and 1970, peaked in 1970, and underwent a serious decline by 1972. This decline in public interest is reflected in support for movement publications. For example, the magazine *Environment* noted in its November 1973 issue that "all of the half-dozen magazines begun during or after the publicity for Earth Day 1970 have now collapsed" (1973, p. 24). *Environment* began publication in 1958, and described itself in 1973 as the only surviving general public magazine in the field (a claim that was immediately disputed by the editors of *Environmental Action*, which began publication in 1969).

It is also believed by many that the environmental movement had begun to decline prior to the energy crisis of 1973-1974, and that this crisis worsened matters considerably. "Environmentalists at Bay" was the title of a *Wall Street Journal* editorial on January 3, 1974 (p. 10); "Environmentalists Foresee '74 as Toughest of Recent Years" headlined the *New York Times* on February 3, 1974 (p. 38); on March 1, 1974, John R. Quarles, Jr., Deputy Administrator of the U.S. Environmental Protection Agency, thought it appropriate to address the Conservation Foundation on the topic "The Land Use Challenge — Reenergizing the Environmental Movement" (Quarles, 1974); and the March 30, 1974 issue of *The Economist* (London), in its "American Survey," found that "the environment is short of friends" (p. 45).

It should be apparent to social scientists if it is not to journalists that social movements do not die sudden deaths. But they do change their activities, their goals, and their character in response to both internal developments and external events.

One basic change that has been noted by a number of observers is a tendency toward increased politicalization. Faich and Gale (1971) describe this as a transition from recreation to politics. Denton Morrison and his colleagues found in 1972 that the movement was changing from one characterized by

consensus (the “motherhood” syndrome) to one characterized by conflict (only an enemy can be “at bay”). (Whether or not these conflicts will become the basis for political coalitions of enduring importance is a question that cannot be answered at this time.)

In this paper, I am particularly concerned with criticisms that are based on other than self-interest, criticisms that come from the interpreters, advisers, commentators, and analysts of our society. These critics are for the most part intellectuals, but not all the criticism is intelligent; in fact, in an attack on what he calls the “backlash,” Paul Erhlich (1972, pp. 226-227) states that some of the “most ill-formed and vituperative opposition” to ecologists comes not from politicians, labor leaders, or governmental and industrial scientists, but from such academic scientists as biochemists, physicists, demographers, chemists, and economists. Moreover, some of the commentary reviewed here comes not from adversaries but from members of the movement; it is characteristic of social movements that adherents are often their own best critics. Some criticism comes from natural scientists, some from social scientists who view the movement with what they hope are nonpartisan eyes. Some comes from journalists and other social commentators. The critics include not only political liberals but also members of the conservative right and the radical left. Their criticisms range from cool policy analysis to hot partisan politics, from careless rhetoric to careful social diagnosis.

I have learned that one undertakes a review of a movement and its critics at one's peril, since the implicit equation is a complex one that cannot really be solved. On the one side of this equation is the environmental movement, vast, disparate, changing, containing groups often unaware of each other's existence, each often scornful of the others. On the other side of the equation are criticisms often leveled not so much against the movement as against particular policies or activities. Although I have tried to limit my sources to what Allan Mazur has called “disputes between experts” (1973a), it has been difficult to exclude uninformed comments from both sides. The debate between environmentalists and their critics that emerges from this analysis seems often to be a spurious debate, with the participants talking past each other. Both sides tend to overreact to events and to the assertions of others, and both sides tend to borrow the authority of science when firm scientific knowledge does not in fact exist.⁷

In the usual lineup of sides in this controversy, the environmentalists are alarmists, while their critics are not; the environmentalists claim that natural resources are scarce, while their critics do not; environmentalists believe that the burning of oil and coal leads to excess pollution, while their critics do not. An

⁷There is one class of criticism that I have generally not included, works that are perhaps best described as having their conclusions in their hortatory titles. Included in this category are Fuchs' “Ecology Movement Exposed” (1970); Grayson and Shepard's *The Disaster Lobby* (1973); Adler's *Ecological Fantasies* (1973); and Claus and Bolander's *Ecological Sanity: A Critical Examination of the Bad Science, Good Intentions, and Premature Doomsday Announcements of the Ecology Lobby* (1974).

example of the complexity of the controversy, however, is provided by the conflicts over the siting and construction of nuclear power plants. In this instance, it is the environmentalists who accuse the nuclear proponents of alarmism over the future power supply, of fallaciously claiming that natural resources are in short supply, and of exaggerating the effects of pollution resulting from fossil fuel generating plants (Mazur, 1973b, p. 1).

The peril in this undertaking lies not only in becoming lost in a morass but also in being accused of taking sides. In attempting to be neutral, I have tried to use the criticisms as a means of achieving understanding rather than of invoking ridicule. And in learning about the consequences of the movement (insofar as any contemporary history can disclose consequences) I have also learned some of its unanticipated consequences. This knowledge — which certainly constitutes one of the main findings of any sociological investigation — is particularly appropriate in this setting, since environmental problems themselves arise almost exclusively as the unanticipated, unwanted consequences of using the natural environment and its resources for what people believe to be — for themselves at least — constructive purposes.

THE NATURE OF THE ENVIRONMENTAL PROBLEM

There are two analytically distinct positions concerning the nature of the environmental problem; let us call them simply optimism and pessimism. Participants in the environmental movement are by this definition pessimists; they feel that the supply of natural resources is not only finite but is also being used up much too rapidly; that in spite of the so-called Green Revolution food shortages and famines will be commonplace in the coming decades; that pollution is largely a product of modern industrial society and is generally getting worse, to the point where the world will be nearly uninhabitable before long; and that all of these problems are compounded by exponential population growth. Critics of the movement, on the other hand, are by this definition optimists who disagree with these views in ways that are described below.

Alarmism

A sweeping accusation made by large numbers of critics is that environmentalists are alarmists. The critical literature is replete with assertions that the movement has no basis for predicting disaster, imminent doom, and the probable collapse of our civilization. It is significant that "The Computer that Printed Out W*O*L*F*" is the title of one of the most frequently cited critical reviews (Kaysen, 1972) of one of the movement's favorite publications — *The Limits to Growth* (Meadows *et al.*, 1972).

A frequent theme in this anti-alarmism literature is that such alarmism is as old as history, that environmentalists calculate within too short a time span, that they are prone to believe that the world has suddenly changed for the worse. John Maddox, the former editor of *Nature* and one of the leading scientist-critics of the movement, in *The Doomsday Syndrome* compares environmentalists to men walking the streets with signboards proclaiming “the end of the world is at hand.” He states that these traditional millenarian alarmists have been replaced by environmentalists — “a throng of sober people, scientists, philosophers and politicians, proclaiming that there are more subtle calamities just around the corner” (Maddox, 1972, p. 3). Allan Schnaiberg, a sociological student of the environmental movement, puts alarmist arguments into time perspective by describing the environmental degradation that existed in England and in other societies early in the Industrial Revolution (1973a, p. 606). Richard Meier, an economist and planner who is a friendly critic of the movement, reminds us that in the early cities of Europe “the slops and animal droppings were carried through the dung gate to heaps just outside the city wall, if anything was done at all.... By the time of the Romans, however, a transformation had occurred.... Personal cleanliness became important.... Citizens developed a taboo against filth at about the same time that the taboos against barbarians were being dissipated” (Meier, 1973, p. 211). The sociologist William Burch (1971, p. 39), another friendly critic of the movement, reminds us of the presumed extinction of many large mammals at the hands of man during the Pleistocene era and the large-scale destruction of forests in Alaska by Eskimos and in New Zealand by Maoris, and suggests that we “stop treating modern man as morally reprehensible and begin recognizing that he is but fulfilling a characteristic trait of survival.” The Lutheran pastor-journalist Richard Neuhaus, one of the most outspoken critics of the environmental movement in America, asserts that the movement represents a yearning to return to a past that never was. The past, he says, was also polluted; it was characterized by very sharp class distinctions; and it was notoriously unhealthy (Neuhaus, 1971, pp. 134-135). And Anthony Downs, both an economist and a city planner, nearly explains away the environmental movement — but not the problems underlying it — by describing it as part of what he calls the “issue-attention cycle” — a cycle of public attention to issues that runs from prediscussion, to public prominence, to a decline as the costs involved in solutions are realized, to a fading away from the center of public attention (Downs, 1972). By this argument, environmental problems have a reality only to the extent that they are matters of intense public concern.

Natural Resources

A second cluster of optimistic opinions relates to natural resources, which are generally claimed by pessimists to be diminishing and in short supply. The economist Kenneth Boulding, for example, speaks for many environmentalists

when he states that "in all probability the underdeveloped countries are not going to develop," since the world contains insufficient natural resources. "If the whole world developed to American standards overnight," he concludes, "we would run out of everything in less than ten years" (Boulding, 1970, p. 166).

The resource-adequacy question is an especially complex one, as well as one on which experts tend to disagree. Some optimists and some pessimists claim that nothing approaching an accurate inventory of the world's resources has ever been taken, although there have been attempts such as that by Fischman and Landsberg (1972, pp. 87-88), who list the reserve tonnage, by location, of 19 nonfuel minerals. The assumptions made about the certainty of their existence and the recoverability of resources are crucial. Landsberg (1974, p. 12), who is a resource economist with Resources for the Future, has shown, for example, that world reserves of zinc range from 235 million tons to 5085 million tons, depending on the extent to which one relaxes both "certainty" and "economic recoverability" constraints. Since current world consumption is 5-6 million tons per year, the role played by such assumptions in determining future adequacy is crucial.

It is also claimed that such inventories have limited value, since the substances that will be defined as natural resources in the future are unknowable. Except in China, coal was not considered a valuable natural resource until the seventeenth century. For example, the *Domesday Book* of 1085-1086, the record of the great survey of England carried out for William the Conqueror, which purported to list everything of value in the country, makes no mention of coal as a resource. Electricity was potentially abundant, but was not considered a source of energy until the eighteenth century. Petroleum had only medical and magical uses until the nineteenth century, and uranium was unimportant until the 1940s (Notestein, 1970). "The origins of natural resources," says William Burch, "are to be found in society, not in the earth" (1971, p. 9).

The metaphor "Spaceship Earth" is a favorite of the environmental movement, since it carries with it the implication that resources are in limited supply and must accordingly be recycled. "Luckily," says John Maddox, "the analogy between the earth and a spaceship is misleading. However small the earth may seem from the moon, it is still vast compared with the scale on which human beings live" (1972, p. 70). He then goes on to point out such facts as that the oceans alone contain 5 lb of gold and 50 tons of iron for every person now alive — without, however, describing the technology necessary to obtain them. And Hans Landsberg has summarized the U.S. supply as follows:

We have thus enhanced our ability to upgrade old resources (for example, cropland through the addition of fertilizer), to discover new ones (oil, gas, nuclear fission and so forth), to utilize them more efficiently (coal in power generation, low-grade copper ore, wood waste for pulp mills and building boards, and the like), and to adjust to relative resource availabilities (aluminum replacing copper, or air-cooling replacing water-cooling). Consequently, the relative importance of the country's resources as inputs into the economic hopper has steadily diminished. (Landsberg, 1967, p. 1036)

A major conclusion of Meadows *et al.* (1972), *The Limits to Growth* — a systems dynamics study of world economic trends — is that since natural resources are finite, current rates of population growth and industrial production will sooner or later lead to catastrophe. Many of the economists and other social scientists who have reviewed *Limits* have used the opportunity to be critical not only of the assumptions, procedures, and conclusions of this study but also of the extremists in the environmental movement in general. A member of the Science Policy Research Unit at the University of Sussex, writing in a book-length critique of *Limits*, entitled *Models of Doom*, points out that one of the “main modes of collapse” in the *Limits* model is through resource depletion. This is the case even though the relative cost of minerals has remained relatively constant and new economically exploitable resources are being discovered all the time. He concludes that “instead of assuming a static reserve index, one could equally well assume that it is in fact expanding continuously, even at an exponential rate” (Page, 1973, p. 41). And in a book review of *Limits*, the demographer Dudley Kirk also criticizes the static concept underlying the treatment of resources, noting that “usable resources have been growing much faster than population” (Kirk, 1973, p. 3).

Food

A third cluster of optimistic opinion concerns the adequacy of the food supply in the future, since the difficulty or even the impossibility of feeding the world's future population is a frequent theme in the writings of the environmental movement. There is a large literature that attempts to demonstrate that widespread famine in many areas of the world is inevitable; the Paddock's *Famine — 1975!* (1967) is a well-known example of the extreme Malthusian position that the law of diminishing returns from agriculture sets limits on the amount of food that can be produced. The inability of the agricultural subsystem to produce sufficient food is one of the major components of the world collapse projected by Meadows *et al.* (1972).

The so-called Green Revolution — the development and widespread use of new high-yield varieties of grain, combined with multiple cropping, increased use of fertilizer, and extensive irrigation — has provided many optimists with grounds for hope. But environmentalists have warned that there are many so-called second-generation problems associated with this revolution: the need of the new strains for large quantities of water and fertilizer means that rich farmers will benefit much more than poor farmers, many of whom will be forced by higher costs and lower prices to migrate to cities; fewer strains in use means that crops run a greater risk of blight; the heavy use of nitrate fertilizers will create stream pollution; high-yield strains have less resistance to insects and their use will result in the excessive use of pesticides, with unfortunate side-effects; and so on (Brown, 1970; Ehrlich and Ehrlich, 1972, pp. 119-125; Wharton, 1969).

This pessimism concerning future food production is countered by critics who state that the problem is either a technical or a political problem — both of which are solvable. John Maddox, for example, argues with critics of the Green Revolution in these words:

if the new cereals are more vulnerable to plant diseases than the less intensively bred varieties previously in use, the moral is, for the time being at least, not that the survival of the human race is threatened, but that the plant breeders must be on their toes. (Maddox, 1972, p. 174)

Marstrand and Pavitt (1973), in attempting to refute the conclusions of *The Limits to Growth*, assert that “the major problems of feeding the less developed world are seen to lie in political rather than in physical limits” (1973, p. 56), a view similar to that of Maddox, who says that the only upper limit to food production is the willingness of governments and farmers to invest in the new techniques (1972, p. 93).

Pollution

A fourth cluster of optimistic opinion revolves around various forms of pollution. Concern over pollution was the major issue at celebrations of Earth Day 1970, and the issue remains central to the environmental movement. Air, water, noise, and waste pollution; the side-effects of pesticides; pollution by such metals as lead, mercury, and cadmium; radiation — all are major targets of the movement.

A number of positions are advanced by critics to counteract crisis writings on pollution. Maddox dismisses the concern as having its origins in overgeneralization from one historical period:

Panic about pollution is the most conspicuous part of the environmental crisis and has its roots in the fear, entirely justifiable in the 1950s, that nuclear radioactivity from weapons tests might cause genetic and other damage. (Maddox, 1972, p. 113)

For the most part, critics do not attack the existence of pollution directly; rather, they claim that environmentalists exaggerate, or lack historical perspective. They note that some forms of pollution have existed since the first cities; in fact, cities are said to be cleaner today than ever before (Neuhaus, 1971, p. 134). Technology, rather than being the villain often claimed by environmentalists, is seen as playing a role even in defining certain types of pollution. Richard Meier (1973, p. 210) has described pollution as a function of methods of detecting and measuring it: “...the concern about DDT, 2,4-D, and other members of that group of synthetics is attributable to a large degree to the excellence of the analytical methods for determining minute amounts of such pesticides.” Meier also believes that pollution is best understood as a cultural concept — a violation of a taboo against soiling. (“Dirt,” said Lord Chesterfield, “is matter out of place.”) And, perhaps most significantly, Meier notes that although there are critical tests being devised which determine what is being polluted on the basis of increasingly

more refined chemical and microbiological analyses, "they must also fit within the rules of purity and of conduct designated by an educated class" (Meier, 1973, p. 211).

Population

A fifth cluster of criticism deals with the assumption that current rapid rates of population growth contribute substantially to the depletion of resources and the destruction of the environment. The argument of the pessimists on this point is a familiar one; the argument of their critics is more complex. If the major points made by a rather wide diversity of critics are assembled into one argument, the following emerges:

Population growth rates are currently high only in the developing countries. In developed countries, such as the United States, birth rates are generally at historic lows and growth rates are 1% or less per year. Further, in many countries it is not the *rate* of population growth that presents problems; it is the *distribution* of the population (generally concentrated in or adjacent to large cities) that creates a drain on resources and strains on the environment (Coale, 1970a, p. 134). In any event, the argument continues, the present high rates of growth in the developing world will certainly not be maintained. In part, this is because no high rate of growth can be maintained forever. This assumption, however, lies beneath much of the pessimistic writing on the population problem. Daniel B. Luten (1971, p. 191), for example, has presented a semilogarithmic plot of exponential population growth of 2% per year. In the year 2600 A.D. the world reaches SRO Day (Standing Room Only), since there would be only 5 ft² per person. The next point on his curve is HB Day, since Harrison Brown once calculated that if such growth continued the earth would eventually be a mass of humanity expanding outward at the speed of light. Luten points out, however, that he is not forecasting such events. On the contrary, he takes care to point out that current growth rates are unique phenomena, and can hardly happen again in the world's history. Dudley Kirk is also critical of "the disposition of protagonists to extrapolate present geometric rates of growth into a varying but usually long range future, with inevitably astronomical figures resulting" (Kirk, 1974, p. 1).

Will the current doubling of the world's population every 30 or 35 years continue? Kirk has given one answer:

Certainly not, with the advances in family planning programs, the rapid progress in better methods of contraception, and, even more important, the progress of the demographic transition in which many countries are showing accelerating declines in birth rates. As development proceeds . . . it is almost certain that birth rates and rates of population growth will fall. (Kirk, 1973, p. 2)

T. W. Schultz, a University of Chicago agricultural and development economist, in an article entitled "The Ecosystem Doom," states the view of

many economists that high rates of growth occur because for most people in the developing world large families are economically rational — not self-destructive, as many environmentalists claim:

One of the keys to the high fertility problem is the fact that children are in a very real sense the poor man's capital because parents are dependent on them for shelter and food when they can no longer provide for themselves, and most of the people in the world are very poor. (Schultz, 1972, p. 13)

He points out that parents, whether rich or poor, take into account that since children are "obviously not free to the parents," the costs of food, clothing, shelter, schooling, and time must be balanced against the benefits of having a family. He criticizes Paul Ehrlich's disregard of this, in *The Population Bomb*: "[Ehrlich's analysis] is not the analysis of the social behavior of parents having children" (Schultz, 1972, p. 13).

Finally, it is argued that regardless of the rate of population growth, environmental deterioration is not the result of overpopulation but of the level of technology Western society has reached and the extent to which our society has abused and neglected the environment. For example, Ronald Ridker, in a study conducted by Resources for the Future on behalf of the Commission on Population Growth and the American Future, projected the annual costs of pollution treatment and control from 1970 to the year 2000, first on the basis of a low population growth projection (assuming a two-child family in the future) and then on the basis of a high population growth projection (based on a three-child family). The 1970 total was \$8.5 billion; the 2000 total was \$33.6 billion for low population growth projection and only \$47.5 billion for the high projection. "Within this time frame," Ridker concludes, "direct attacks on pollution clearly dominate over restrictions on population and economic growth as means of reducing emissions" (1973, p. 317).

Within the environmental movement itself, a major debate has raged on this point, between the biologists Barry Commoner and Paul Ehrlich.⁸ In *The Closing Circle* (1971) and other publications, Commoner maintains that the environmental crisis has been created not by population growth but by technological innovations, many introduced during and after World War II. His thesis is based essentially on comparisons between population growth rates and increases in environmentally harmful technologies (electricity consumption, automobile usage, phosphate fertilizers, etc.) He states that "in the U.S., population rise accounts for 12 to 20 per cent of the increase in post-war environmental impact, while the technological factor accounts for 40 to 85 per cent of these increases" (Commoner, 1971, p. 209) and "if U.S. agricultural and industrial operations were ecologically sound, the country could support many more people than it does now with far less environmental impact" (Commoner, 1971, p. 231).

⁸The Ehrlich–Commoner debate is summarized in a review of Commoner's *The Closing Circle* (Ehrlich and Holdren, 1972a) and in a rejoinder by Commoner (1972a). Both articles were also published in the May issue of the *Bulletin of the Atomic Scientists*. See also Ehrlich and Holdren (1972b), Hardin (1972), Holdren (1973), and Pole (1973).

Ehrlich counters these arguments by pointing out the nonlinear relationship between population growth and environmental impact. The argument for nonlinearity is based on his assertion of such principles as *diminishing returns* (the use of lower-grade ores and less fertile land); the *threshold effect* (500 people may live around a lake and not pollute it excessively with their sewage but 505 people, according to Ehrlich, may overload the system and create a eutrophic lake); and *synergism* (air pollution deriving from mixtures of agricultural chemicals and power plant and automobile effluents). As an advocate of population control, Ehrlich states that “we must have population control at home, hopefully through changes in our value system but by compulsion if voluntary methods fail” (Ehrlich, 1968, pp. xi-xxi). In response to this line of thought, Commoner has indignantly responded that “more simply stated, this is political repression” (Commoner, 1971, p. 212).

The Ehrlich–Commoner debate seems to demonstrate (1) the diversity of points of view that are encompassed within the environmental movement, (2) how easily ideological positions can lead scientists to confuse the situation in high population growth–low technology countries with that in low population growth–high technology countries, and (3) how tempting it is for specialists in one field (biology) to assume that their expertise carries over to another (demography).

THE IDEOLOGY OF THE ENVIRONMENTAL MOVEMENT

The environmental movement, like other social movements, seeks to bring about changes in the social order—in this case it is working toward a more rational use by man of his physical environment. Social movements generally claim that they have special knowledge of the nature of man; his proper destiny; and the social, economic, and political decisions that can bring this destiny into being. The environmental movement, moreover, bases many of its claims to knowledge on scientific principles and evidence, and in fact many of its leaders are biological and physical scientists. But the assertions made in defense of the movement and its goals may not on the basis of such claims alone be accepted as true. On the contrary, they—like the assertions of other partisans—must be assumed to be made up of what Bernard Barber has described as “a mixture of scientifically valid, scientifically indeterminate, and scientifically invalid statements and of a mixture of logically consistent and logically inconsistent statements” (Barber, 1971, p. 246). In short, they are ideological statements, and must be analyzed as such.⁹

⁹My use of the difficult term “ideology” is based on the definition proposed by Barber (1971). Barber’s major points are that ideologies should be defined by their functions for social systems rather than by their content and that ideologies are not aberrations but universal components of all social systems.

In its sociological usage, the term “ideology” is or should be value-neutral; in the real world of conflict, polemic, debate, and controversy, the adjective “ideological” is often an accusation. (It is of course the other person’s views that are ideological; as the British economist Joan Robinson has pointed out, no one is conscious of his own ideology, any more than he can smell his own breath.¹⁰) Accordingly, many scientists who are critical of the movement base their objections on what they believe to be the movement’s ideological positions. The sociologist-demographer Amos Hawley, for example, in analyzing the assertions of ecologists who are active in the movement, notes that their “confusion of personal preferences, esthetic predilections, and moral judgments with scientific principles can hardly be of service to ecology” (Hawley, 1973, p. 1197). Richard Meier, who must be considered a friendly critic of the movement, notes that “popular versions of ecology have become the dogma of the [Nature] religion, and the wilderness is its cathedral” (Meier, 1973, p. 215). And R. W. Behan, a professor of forestry, describes the value-laden assertions of environmentalists as “the liturgy of the environment” (Behan, 1974, p. 27).

Although the popularization or misuse of the term “ecology” is a favorite target of critics, ecologists as a group seem to have played a rather minor role in the leadership of the movement. None of the well-known figures except Rachel Carson, asserts Sheldon Novick (1974, p. 4), can really be called an ecologist by training. However, there is a tendency among environmental-ecological partisans to transform the term “ecology” into an ideological term, a call to action. One of the earliest environmental anthologies had the title *The Subversive Science* (Shepard and McKinley, 1969), and “ecology — the last fad” was one of the more portentous bits of college student graffiti of the early 1970s.

This tendency is widely criticized. As the sociologist Samuel Klausner has pointed out, the normative use of the originally value-free term “ecology” has had unfortunate consequences: it has contributed to a crisis mentality, to extreme attitudes, to viewing issues totalistically and in terms of ultimates (Klausner, 1972, p. 39). Ecology, John Maddox laments, “is no longer a scientific discipline . . . it’s an attitude of mind” (Maddox, 1972, p. 161).

One consequence of the use of ideological statements by the movement is that both critics and adherents find it appropriate to call names and to use labels. The sociologist Irving Louis Horowitz (1972, p. 126), for example, calls the antigrowth, anti-industrial sentiments of the environmental movement “bourgeois Ludditism”; the pastor-journalist Richard Neuhaus, after saying that he does not attribute to the devotees of the wilderness “any political intentions of a fascist character,” goes on to say that “the notion of transcending politics in the name of nature and the natural is strikingly similar to crucial elements of National Socialism” (Neuhaus, 1971, p. 152); the sociologist William Burch derides “the new puritanism which, in the guise of saving nature, thunders with

¹⁰ Quoted in Pavitt (1973, p. 142).

irrevocable contempt for our species" (Burch, 1971, p. ix); the urban planner Peter Marcuse (1974, p. 1) asserts that "not only has the conservation movement ignored the problems of the inner-city — it has created them"; the earth scientist Sara Bretsky (1974, p. 12), in reminding us that energy-intensive household appliances enhance the status of women, notes that "ecologists are male chauvinist pigs"; environmentalists in Colorado, fighting off a plan to authorize construction for the Winter Olympics, installed bumper stickers on their cars reading "Don't Californicate Colorado"; and the citizens of Alaska, reacting against the environmental movement's opposition to the construction of the TransAlaska Pipeline, used bumper stickers to proclaim their counterattack: "Let the Bastards Freeze in the Dark."

Its ideological use of the term "ecology" is a rather general charge leveled against the movement by critics. More specifically, critics accuse the movement of holding a variety of distorted opinions about man, society, nature, and economic growth. Each of these targets is considered in turn.

Views of Man

The first topic on which I have chosen to contrast the ideologies of environmentalists and their critics is their image of man — his nature and his importance.

A basic tenet of environmentalism is that man is a part of nature: "Not Man Apart" is the title of a popular series of Sierra Club posters. And a frequently cited diagnosis of the current situation, Lynn White Jr.'s "The Historical Roots of Our Ecologic Crisis," asserts that the origin of our trouble lies in the Christian notion of human dominance over nature: "...we shall continue to have a worsening ecologic crisis until we reject the Christian axiom that nature has no reason for existence save to serve man" (White, 1969, p. 1207).

Critics of the movement reject the notion that man is simply one species among many. Amos Hawley, for example, asserts that ecologists active in the environmental movement "tend to treat man simply as a species, as an aggregate of homogeneous individuals rather than as a highly differentiated and organized population" (Hawley, 1973, p. 1197).

Another version of this basic criticism comes from John Maddox, who feels that man is different from the rest of the natural world and has benefited from this difference:

The truth is that the qualities which allowed the early ancestors of modern man to be successful — the capacity both to climb and to walk, the capacity to use tools and the capacity to learn — have made it possible and also inevitable that people should become, to some extent, detached from the ordinary pressures of ecology . . . For the time being at least, there is no evidence that the human race has failed to profit from its relative detachment from the rest of the natural world. To the extent that the ecologists deny this proposition, and even pretend that human beings and, say, rabbits occupy equivalent positions in the natural scheme of things, they are false prophets. (Maddox, 1972, pp. 189-190)

This is another frequent complaint: that the movement equates animal lives with human lives, as in the caribou-crossing argument against the Trans-Alaska Pipeline, and often seems to opt for the benefit and protection of animals over man. "Unhappily, in the popular clamor now called ecology, it is often hard to tell just where the participants stand. Are they for people or for foxes?" asks John Maddox (1972, p. 171).

The economist T. W. Schultz blames the population alarmists in the movement for misinterpreting the actions of man. "People do not breed like fruit flies up to the limits of their food supply" (Schultz, 1972, p. 13), he says, adding that they are rationally aware of the costs and benefits involved in the care and upbringing of children.

Another dimension of the debate over the nature of man is illustrated by the commentary surrounding *The Limits to Growth* by Donella H. Meadows *et al.* (1972). Making use of a world simulation model, the authors of *Limits* conclude that current rates of population growth and industrial production are leading the world economy to the point of collapse. The reception accorded the book by the social scientific community was immediate, detailed, largely critical, and often hostile. Rarely has a book been so widely and adversely reviewed in scholarly journals, yet the authors, far from being banished, have frequently been invited to speak at scientific meetings and on university and college campuses throughout the world. In addition to becoming social science celebrities, they have been given many opportunities to argue with their critics. Thus, in *Models of Doom* (Cole *et al.*, 1973), members of a project team at the University of Sussex analyze and largely criticize *The Limits to Growth*. At the end of this book there is "A Response to Sussex" written by the four authors of *Limits*: Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, and William W. Behrens, III. The largest part of the response is technical: the Sussex team, according to the *Limits* authors, simply did not understand the purpose or the results of the world model on which the projections reported in *Limits* were based. But the authors also argue back on ideological grounds. They readily admit that the environmental movement may turn out to have been a fad, and merely the result of rising expectations, but they also say that the movement may be "a result of the first glimmerings of human understanding about total systems and the first human perception of the worldwide negative impact of man's activities on the ecosystem" (Meadows *et al.*, 1973, p. 236). And they point to a basic difference between the groups at Sussex and at MIT: they hold opposite views of the nature of man. The view of the Sussex group, and of critics of the environmental movement in general, is that man is nearly omnipotent, capable of solving his problems through his social, economic, political, and technical institutions. In contrast, the MIT group (and most environmentalists) have a more pessimistic view of man and his institutions, which are described as "ponderous and short-sighted, adaptive only after very long delays and likely to attack complex issues with simplistic and self-centered solutions" (Meadows *et al.*, 1973, p. 239).

Views of Society

A basic assumption of environmentalism is the interconnectedness of life — hardly surprising in view of its intellectual ties with ecology. Yet environmentalists are often accused of ignoring these interconnections, of ignoring the social systems and institutions that link men to each other and to the physical environment. In his review of the Ehrlichs' book *Population, Resources, Environment*, for example, the demographer Ansley Coale notes that "in their proposals, the Ehrlichs, hyperaware of balances and interconnections in ecosystems, seem only occasionally aware of balances and interconnections in social systems" (Coale, 1970b, p. 429).

A crucial feature of society is that much of the behavior of its members is regulated through social institutions, a feature that critics believe environmentalists also tend to ignore. Leo Marx, a professor of English literature, in his article "American Institutions and Ecological Ideals," notes that "a certain innocent trust in the efficacy of words, propaganda, and rational persuasion always has characterized the conservation movement in this country" (Marx, 1970, p. 947). And David Lowenthal (1970b, p. 294) says that "like the peace and civil right movements, the environmental cause exemplifies the anti-institutional bias characteristic of American reformism." Witness, for example, the rather plaintive fable embedded in a review in *Environmental Action of Models of Doom* and two other books that anticipate a nuclear-powered future:

Somewhere between the dark age and the age of plutonium glowing in the dark, environmentalists have raised the hope of stable, ecological sanity, an age of windmills and solar-heated homes, of bicycles and railroads and gardens on rooftops, of free and happy people who don't need Consolidated Edison, General Electric or the Atomic Energy Commission. (Berling, 1973, p. 15)

An example of the alleged anti-institutional bias of environmentalists is the common assumption that the world's environment consists of a set of interrelated objects that existed in some stable state before man's arrival. Man's activities are assumed in this implicit belief system to be disruptive; accordingly, they must be altered, limited, and controlled if the environment is to be preserved. The titles of many of the key books in the recent history of the movement — *Our Plundered Planet*, *Silent Spring*, *The Population Bomb*, *The Limits to Growth* — reflect this basic assumption concerning man's harmful activities. The frequent complaint that the environmental movement proposes only negative solutions seems directed against this belief system.

Critics of this "man the destroyer" assumption about the origin of environmental problems assert that the man-nature relationship is much more complex. It is not man's inherent nature but his social and cultural systems that create both the environment he lives in and the environmental crises he faces.

The major theme of the radical critique from outside the environmental movement is that the movement discriminates against the poor; this critique is discussed below. The major theme of the radical critique from within the move-

ment, on the other hand, is that it often fails to realize that environmental problems are fundamentally social, economic, and political — not technical — problems. The anarchist Murray Bookchin, for example, who was one of the early spokesmen for the environmental movement, sees environmental problems as a reflection of social problems and says that “the imbalances man has produced in the natural world are caused by the imbalances he has produced in the social world” (Bookchin, 1970, p. 34). In reporting on the June 1972 Stockholm conference, the radical journalist Barry Weisberg noted approvingly that the Folkets [Peoples'] Forum was devoted to exploring “the intimate connection between biological and social imbalance” (Weisberg, 1972, p. 37). The Forum’s platform stated that “we do not believe these [environmental] problems are the inevitable result of technological development. It is necessary to examine the political and economic roots of the problem if we are to arrive at successful solutions” (Weisberg, 1972, p. 37). Weisberg scornfully reported the actions that were taken at the conference to restrict whaling, stating that this was the kind of superficial success that the U.S. delegation had hoped for.

Here is a rather extreme example of the tendency of the political left to locate the origins of environmental problems in the social structure: the beliefs of a pre-Earth Day radical student group, Ecology Action East. The group believed:

- that the ecological crisis is fundamentally a social problem, deeply rooted in the structure of society and in the cultural values that this society generates and reinforces.
- that all social institutions of domination and exploitation, from the patriarchal family to the modern nation-state, must be dissolved.
- that . . . the ecology movement is also inseparable from the liberation movement of colonial peoples, black and brown people, american Indians, working people, gay people, women, youth, and children. (*Rat*, January 7, 1970, p. 10)

It is not only spokesmen for the left who insist on the social and political origins of environmental problems: social scientists holding a variety of political opinions also make the same point. For example, the social psychologist Marie Jahoda asserts that the major limitation of *The Limits to Growth* is that the model used to generate the pessimistic conclusions did not include a recognition of this fundamental assumption:

The major weakness of the world dynamics models is that they illustrate the pessimistic consequences of exponential growth in a finite world without taking account of politics, social structure, and human needs and wants. The introduction of an extra variable — man — into thinking about the world and its future may entirely change the structure of the debate which the models have so far limited to physical properties. (Jahoda, 1973, p. 209)

And the economists A. J. Surrey and A. J. Bromley, in their review of *Limits*, assert that “the real problem is not the energy shortage but the social and economic adjustments needed if this rapid growth of consumption continues” (Surrey and Bromley, 1973, p. 105).

Views of Nature

Since one pervading view of the history of civilization is that it consists of man's successive conquests over nature, the inherent conflict between man and nature is age-old, and the ideological statements both of the environmental movement and of its critics are replete with references to nature. Our understanding of the intensity of the feelings aroused by these matters has been greatly enhanced by a number of important historical studies, particularly by John Passmore, *Man's Responsibility for Nature* (1974); Hans Huth, *Nature and the American* (1957); Leo Marx, *The Machine in the Garden* (1964); and Roderick Nash, *Wilderness and the American Mind* (1973). The nature themes revealed by an analysis of the contemporary environmental literature can be traced to sources described in these historical studies. The worship of nature and distortions of nature are two which are particularly significant.

The Worship of Nature

Those critics of the environmental movement who single out what they believe to be the nature worship practiced by environmentalists often mean their criticism to be taken quite literally. It is significant, for example, that the journalist John McPhee, in searching for an apt title for his book about David Brower (who is often called the "high priest" of the movement), selected *Encounters with the Archdruid* (1972); "Archdruid" is the name given to Brower by a land developer who thinks that nature needs to be civilized by man.

Richard Lowry's criticism of the movement's tendency toward nature worship focuses on the diversionary results of such commitment:

the new "religecology" runs the very great risk of further masking the basic nature of the ecology crisis.... The collective religious commitment to cleaning up the environment creates a kind of therapeutic community in which all can purge themselves of personal guilt by simple and immediate acts of penitence. Yet, the major activities of life can continue relatively unchanged. (Lowry, 1971, pp. 352-354)

The notion that "nature knows best" is another aspect of the nature worship within the environmental movement that is attacked both from within and without the movement. The biologist René Dubos, commenting on Barry Commoner's fourth law of ecology (which states that "Nature knows best"), says that it is little more than a tautology. In a sympathetic attack on this law, Dubos shows the extent to which the environment has been created or improved by man (agricultural land is the best example), the frequency with which nature is self-destructive (population crashes among animals, droughts, earthquakes, volcanic eruptions), and the extent of nature's failure to recycle (fossil fuels are an example of this failure). In fact, he concludes that "the symbiotic interplay between man and nature can generate ecosystems more diversified and more interesting than those occurring in the state of wilderness" (Dubos, 1973, p.

770). This point has also been made by T. W. Schultz (1972, p. 15), who reminds us that in India, where the land has been cultivated for centuries, "the soils are presently better than they were in their original natural condition," adding that "the crisis-bent ecologists would do well to ponder a bit on this important fact."

Distortions of Nature

Besides accusing members of the environmental movement of nature worship, some critics point out ways in which they see environmentalists using nature manipulatively in order to advance their claims. Burch (1971, p. 11) says that "though we talk of nature, our legislative and economic actions in the name of nature are essentially attempts to dictate certain social values to the future." This relates directly to Meier's discussion of how different classes of people and different societies define pollution: "Because they regard themselves as stewards of the Earth, the Nature worshipers feel justified when intervening to impose their morality upon the behavior of nonbelievers." Accordingly, "Thou shalt not construct a highway or transport electric power through a wilderness" becomes a commandment (Meier, 1973, p. 216).

Man's landing on the moon, his viewing the earth from a distance, is said to have been a turning point in his existence and a vindication of the environmental movement. Margaret Mead, a prominent scientist who is also a leader and defender of the movement, has advanced this notion:

The environmental movement was given new life and impetus as a result of the first pictures of the earth as seen from the moon — a small, lonely blue ball in space, vulnerable, needing protection from the ravages of technological man. (Mead, 1973, p. 1)

And Archibald MacLeish has contributed an even more rhapsodic interpretation of this dramatic moment in man's history:

To see the earth as it truly is, small and blue and beautiful in eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold — brothers who know now they are truly brothers. (MacLeish, 1971, p. 72)

Nonsense, says Richard Neuhaus (1971, pp. 72-73). The earth is not "bright loveliness" and we do not believe that we are truly brothers. Distance distorts as well as reveals, and a view of the earth that does not include its inhabitants is a distortion of nature.

The question of the relationship between nature and man's view of what is "natural" has a long history; a recent detailed analysis is Martin Krieger's article, "What's Wrong with Plastic Trees?" He describes the dilemmas facing the binational group that is charged with preserving Niagara Falls, whose "naturalness" is only a few thousand years old, and whose grandeur, height, and smoothness of flow are in constant flux because of rock falls and the diversion of water by hydroelectric plants. The dilemma is whether to do nothing about the rock falls,

which would be the classic preservationist position, or to intervene in various ways, and thereby preserve the "naturalness" of the Falls. "There is nothing pernicious about the changes wrought by nature," Krieger says, "the problem is that Americans' image of the Falls does not change. Our ideal of a waterfall, an ideal formed by experience with small, local waterfalls that seem perfect and by images created by artists and photographers, is not about to change without some effort . . . Paradoxically, the phenomena that the public thinks of as 'natural' often require great artifice in their creation" (Krieger, 1973, pp. 447-448).

Another example is the Old Man of the Mountain, a dramatic ledge formation in Franconia Notch, New Hampshire. Preservationists are seeking to protect the Old Man's profile against the designs of highway engineers, but the naturalness they seek to protect in fact consists of ledges held together since 1916 by bolts and turnbuckles (Kifner, 1974, p. 25).

Views About Economic Growth

A bias against both population growth and economic growth pervades the environmental movement, which is hardly surprising, since it has many of its historical roots in the efforts to save the scenic West from destruction by an expanding economy and many of its intellectual roots in the science of ecology, with its concepts of equilibrium and interrelatedness. The hippie critique of industrial society which influenced much of the student ecology movement of the early 1970s reinforced this bias, and one of the campus slogans that emerged during that period was "Growth for the sake of growth is the ideology of the cancer cell."

Denton Morrison has coined the term "growthist" to identify the opponents of "environmentalists" in his analysis of the dynamics of disputes over environmental issues.¹¹ And the antigrowth conclusions of many of the major environmentalist writings have been adopted by members of the movement as a demonstration of the correctness of their views. Meadows *et al.* (1972), in *The Limits to Growth*, assert that the only way to avoid enormous increases in worldwide death rates within the next 100 years is to stop all population and economic growth during the next two decades or so, and many of the writings of Barry Commoner (1971, 1972a,b) conclude that most environmental problems are the result of the kind of economic growth that has taken place:

With very few exceptions, rapidly growing productive activities have intense environmental impacts, which are markedly greater than the impacts of the activities which they displace; the growth pattern is counter ecological. (Commoner, 1972b, p. 341)

The growing interest among economists in developing a so-called steady-state economy (Daly, 1973) is also welcomed by many environmentalists.

¹¹ Morrison (1973, p. 83) states that the term is "implicit in and thus largely derived from E. J. Mishan's notion of 'growthomania,'" developed in his *Technology and Growth: The Price We Pay* (1970).

The contemporary debate over the feasibility and desirability of continued economic growth is of course not limited to environmentalists and their critics. A major theme in economic analysis has always been the determinants and consequences of growth, and arguments for and against growth abound in the writings of many contemporary economists, as well as in those of Adam Smith, Thomas Malthus, Karl Marx, John Stuart Mill, and John Maynard Keynes. Most economists are of course proponents of economic growth; a notable exception is the British economist Ezra J. Mishan (see, for example, Mishan, 1970, 1973), who has been called "the father of modern antigrowthmen" (Olsen *et al.*, 1973, p. 235).

The term "growthist" is a useful label to describe the opponents of environmentalists in conflict situations, but it hardly describes the complex views of the economist critics of the movement. (See, for example, the articles by economists in the Fall 1974 issue of *Daedalus*, "The No-Growth Society.") In fact, the relevance of the progrowth vs. antigrowth debate itself has been challenged by the economist Ronald G. Ridker in his article "To Grow or Not to Grow: That's Not the Relevant Question" (1973).

Many of the arguments advanced in defense of growth are negative in nature; that is, they attempt to refute the arguments of antigrowth advocates. Roland N. McKean's useful essay "Growth vs. No Growth: An Evaluation" consists for the most part of refutations of antigrowth arguments, and concludes hesitantly that "maybe growth will appear to be like democracy: the worst possible situation one can imagine—except for the alternatives" (McKean, 1973, p. 217). But two positive arguments emerge.

First, it is asserted that economic growth is not a goal "but a means to the end of fulfilling human needs" (Jahoda, 1973, p. 212). More specifically, "the fruits of economic growth will make the resolution of the social and economic problems we face much easier to solve" (Ridker, 1973, p. 1315). Other economists state not only that we can cope with economic growth but also that a rising GNP is necessary to pay the costs of controlling pollution (Jacoby, 1970, p. 42; Wallich, 1972, p. 62). Passell and Ross (1973, p. 34) reject the environmental claim that ecological damage is an inevitable result of economic growth and assert that such damage can best be controlled in a growing economy by the rational application of technology.

Second, it is stated that economic growth is necessary if economic development in the Third World is to continue. Ronald Ridker, for example, comments on a figure of speech adopted by some environmentalists, "stopping the ship until we know what lies ahead in the fog," calling it a rich man's image, one that depicts passengers sitting comfortably in their staterooms waiting for the fog to lift. He continues:

The poorer two thirds of the world's population cannot wait, particularly when it is not clear that future generations will be worse off than people today. If the poor are to wait, the prudent course would be to share the stateroom—that is, the available resources—with them. (Ridker, 1973, p. 1318)

The 1972 Stockholm Conference on the Human Environment was characterized by a split between developed and developing countries and their opposing attitudes toward economic growth, just as the 1974 Bucharest Conference on Population was characterized by disputes between these two sets of countries over the relative priorities of economic growth and population stabilization. The relationship between economic growth and environmental destruction in Third World countries is far from known, and in fact it is currently being studied by a team of economists at Harvard under the direction of Wassily Leontief (see *Development Forum*, August-September 1973, p. 12). But many leaders in the developing countries claim that economic growth is essential to their future. For example, the Brazilian geographer Josue de Castro argues in favor of further economic growth: "It seems to me quite absurd to propose a zero economic growth for the Third World when the peoples of these areas consider economic development to be their last hope of emerging from their crushing burden of poverty" (de Castro, 1973, p. 20). He sees underdevelopment itself as representing a type of pollution localized in certain regions of the world which have been unjustly exploited by the great industrial powers of wealthy nations.

THE POLITICAL CRITIQUE OF THE ENVIRONMENTAL MOVEMENT

"One way of conceptualizing most environmental policies," Allan Schnaiberg (1973b, p. 11) has reminded us, "is to state that they are aimed at reducing environmental usage of particular resources."

Environmental policies both cope with and increase scarcities of various kinds; they encourage a certain type of life style and discourage other types; they activate interest groups; they create conflicts over environmental decisions; and they both influence and are influenced by those who hold power in society. In short, they are political policies, and since the environmental movement seeks to influence the formulation and execution of these policies, it is in the broad sense of the term a political movement.

Critics of the environmental movement have of course noted its political content, but since the movement is so diverse, the criticisms of its political nature range widely. Here I have focused on the criticisms made of two broad aspects of the movement: the composition of its membership and the environmental problems that it identifies and seeks to solve.

Membership

The environmental movement is frequently criticized for the composition of its membership; it is, say its critics, too much a movement of the rich, the

upper-middle class, or simply the middle class; it has little appeal to blacks and the poor; it is, in a word, elitist (Epstein, 1973; Horowitz, 1972; Lowry, 1971; Neuhaus, 1971; Smith, 1974; Zwerdling, 1973). Sam Love, an activist leader who has tried hard to broaden the basis of the movement, noted that Earth Day 1970 — of which he was one of the major organizers — “made everyone realize how elitist the environmental movement is” (quoted in Zwerdling, 1973, p. 26).

It is of course difficult to determine the composition of any social movement with precision, since many arbitrary decisions concerning inclusion must be made. If we include as members of the environmental movement persons who express a high degree of concern about environmental problems, a substantial portion of the country belongs. In a 1969 Gallup survey, carried out before Earth Day 1970, 51% of the public expressed deep concern over the environment (McEvoy, 1972, p. 225). By 1973, this proportion had shrunk considerably but was still substantial, according to a survey conducted for the Environmental Protection Agency by the J. M. Viladas Company. This survey found that in metropolitan areas with 1 million or more people, 32% expressed a high degree of concern, while in nonmetropolitan areas, only 4% of the population were as concerned (*The American People . . .*, 1973).

Who are the people who are most concerned? In the 1969 Gallup survey, there were only small differences in level of concern between men and women, young and old, and large-city dwellers and small-town dwellers; there were, however, some regional differences, with Westerners and Midwesterners most concerned. The large differences were in education and income. College-educated people were more likely than grade school-educated people (62% vs. 39%) to express deep concern, and persons with family incomes of \$10,000 and over were more likely than those earning less than \$5000 (58% vs. 41%) to express deep concern (McEvoy, 1972, p. 225).

These results follow a similar pattern: persons with more education and higher incomes almost always respond positively to issues concerning the welfare of the community or the society. In a series of three state-wide surveys conducted by the Wisconsin Survey Research Laboratory, in 1968, 1969, and 1970, the same pattern emerged. Table I gives the results: that concern over air and water pollution increased markedly during this 2-year period, which corresponded of course to the large increase in mass media attention to the environment prior to Earth Day 1970; that educational differences narrowed somewhat during this period, suggesting a broadening of support for the movement during this period of rapid growth; and that the association of educational achievement and concern over social issues is confirmed.

What about the organizational membership of the movement? A 1973 study of volunteers and voluntary associations in the environmental and conservation field conducted for the Environmental Protection Agency revealed that there were some 20,000 “primary associations in the United States and another 20,000 associations active in closely related fields” — local chapters of national

Table I.^a Proportion of Respondents Identifying Air and Water Pollution as One of the Two Most Important Problems Facing the State of Wisconsin, by Education, by Year^b

Year	Years of education			Total
	0-8	9-12	13+	
1968	5% (166)	19% (290)	29% (114)	17% (570)
1969	14% (146)	26% (301)	32% (122)	24% (569)
1970	27% (154)	45% (336)	44% (129)	40% (619)

^aAdapted from Buttell and Flinn (1973, Table 2).

^bThe number of cases on which the percentages are based is given in parentheses.

organizations are counted as associations in these totals (Smith, 1973, p. 542). Slightly less than half of these organizations were found to have fewer than 100 members and the rest "will be fairly evenly divided among those with memberships between 100 and 500, and over 500" (Zinger *et al.*, 1973, p. 364).

Obtaining a total count of the organizational membership of the movement is complex, since many members are enrolled in an organization but are inactive and many people belong to more than one environmental organization. Nevertheless, it is possible to conclude from this 1973 study — as noted in the Introduction — that the organizational membership of the movement in the early 1970s was some 5-10 million. Although a leveling of organizational growth has clearly occurred in the past year or so, there is no evidence of any major decline (Luten, 1973, pp. 8-9). In fact, it was recently reported (Quigg, 1974, p. 35) that "in the ninety-day period from November through January, when the energy shortage was at its worst, membership in the National Audubon Society had its biggest jump in its history — 30 percent over that of the previous year." In the words of the editor of the *Environmental Action Bulletin* (Cox, 1974, p. 22), "the environmental movement has just begun."

Who are the members? The best data available on this question come from the two organizational studies. Harry *et al.* (1969) report the results of a membership study of the Mazamas, a large Pacific Northwest outdoor club; their conclusion is that conservation is "an upper-middle class social movement." A replication of this study among the membership of the Sierra Club reached the same conclusion:

The predominance of upper-middle class members of the Club is indicated by education, occupation, and income. Seventy-four percent of the respondents had at least a four-year college degree. Thirty-nine percent had an advanced degree. The high mean education of respondents is reflected in the occupational distribution of the sample. Forty-nine percent of the male respondents were "higher professionals," i.e., physicians, lawyers, college professors, engineers, and twenty-one percent were

"lower professionals," i.e., school teachers, free lance writers, artists. Only five percent of the males were in clerical or sales occupations, owners of small businesses or unskilled workers. (Devall, 1970, p. 123)

Problems

The environmental movement is criticized for its elitist membership not so much for that attribute in itself but for the class-related attitudes and values that it implies and the selection of problems that this elitism determines. Daniel Zwerdling, admitting that "it may be an unkind exaggeration," complains that the movement has been "mostly a middle and upper middle class battle, largely to save beautiful lands and animals which only the middle and upper classes will ever see" (Zwerdling, 1973, p. 26). Irving Louis Horowitz (1972, p. 125) finds that the movement appeals to those "who still have faith in rural ideals and troglodyte values," to middle-class suburbanites, and to "a coalition of economic conservatism and scientific narrowness," and concludes that "if the ecology movement is to have a positive payoff, it can no longer be perceived as a movement against the city or as a movement against technology, but rather as a protest against exaggerations, excesses, and absurdities within urban living and technological society" (Horowitz, 1972, p. 132). Krieger expresses much the same thought when he asserts that "the issue of environmental quality may be viewed as a conservative response to the urban revolution" (Krieger, 1970, p. 312). But perhaps the most outspoken critic of this aspect of the movement is Richard Neuhaus, whose *In Defense of People* (1971) is a polemic against the movement largely on the basis of such attitudes and values. Neuhaus, for example, develops a theory of class-related anxieties. The maid problem, he says, is an upper-class anxiety, the lower class worries about removing yellowing floor wax; the rich worry about their stocks, and the poor about getting more overtime in their paychecks. Neuhaus continues:

Conservationism has been historically and remains an upper-class anxiety. The very rich fret about their gaming or the preservation of their estates. The moderately rich fight for their leisure in the wilderness, and on down to the middle-income vacationer's fear about the overcrowding of the trailer camps or terror about what he is told he is inhaling with each breath of city air. (Neuhaus, 1971, p. 136)

In attacks on the movement, the attempts of its adherents to preserve an elite life style are repeatedly criticized. William H. Whyte (1968, p. 21) ridicules the new landed gentry, consisting, he says, of retired naval or foreign service couples, or businessmen who raise Aberdeen Angus, who have both a feeling for the countryside and the time and ability to fight local preservationist battles. Passell and Ross, noting that clean water is generally purchased by the Treasury and thus through the tax structure, comment wryly that "it is the rich who go

sailing while the poor pay sales taxes" (Passell and Ross, 1973, p. 44). Philip M. Hauser notes that

there is danger that the ecologists' crusade . . . can be used to obscure more immediate and pressing man-made problems of at least equally high priority. Certainly in the coming generation it will be at least as important to eliminate slums and ghettos as to preserve the Great Lakes; and to eliminate rats in substandard housing as to preserve the bald eagle. (Hauser, 1971, p. 445)

Whitney Young, then director of the National Urban League, went further than Hauser, and said that pollution control has a lower priority:

The war on pollution is one that should be waged after the war on poverty is won. Common sense calls for reasonable priorities and not for inventing new causes whose appeal seems to be in their potential for coping out and ignoring the most dangerous and most pressing of our problems. (Young, quoted in Sprout and Sprout, 1971, p. 11)

Superficiality

Another basis for criticizing the problems selected for attention by environmentalists is their superficiality. "Cleaning up the environment" is described as "cosmetology," and is widely criticized as a major goal. Leo Marx speaks for many critics:

No cosmetic program, no clean-up-the-landscape activity, no degree of protection for the wilderness, no antipollution laws can be more than the merest beginning. Of course such measures are worthwhile, but in undertaking them we should acknowledge their superficiality. The devastation of the environment is at bottom a result of the kind of society we have built and the kind of people we are. (Marx, 1970, p. 951)

Ritchie Lowry (1971, p. 351) makes a similar point, saying that "the massive character of the world-wide pollution problem will not be resolved by campaigns to clean up local backyards or village streams . . . some of us pollute a great deal more than others, and this is a function of who has power and who doesn't."

An overemphasis on cosmetics can also be self-indulgent. Richard Neuhaus quotes with deliberate scorn a *New York Magazine* article about a New York society woman and her week of do-it-yourself ecology. By such devices as carrying her husband's shirts home from the laundry tied only in string and sprinkling her coffee grounds on the flowerbeds of the Park Avenue mall she managed to cut her weekly garbage total nearly in half. Neuhaus uses this example of a "passionate conservationist who believes that good ecology, like charity, begins at home" as an illustration of the immorality and diversionary nature of the self-indulgent asceticism that often underlies the cosmetic approach (Neuhaus, 1971, pp. 249-251).

Cosmetic activities are not only superficial; they can also be expensive. The environmental movement is said to provide opportunities for the middle

class to impose its notions of cleanliness and order on the lower classes, and the subjectivity and cultural relativity of what constitutes dirt and disorder have been noted by a number of observers. What is noted less often is the costs to the public involved in cleanup campaigns. Passell and Ross (1973, pp. 41-42), for example, point out that removing 100% of discharges from streams in this country — as called for by 1985 in one Senate Bill — is estimated to be three times as costly as 97% removal, and to be unnecessary as well, since streams have a natural capacity to absorb limited amounts of waste. "There is no reason to make cleanliness an absolute value," they conclude. And Krieger (1970, p. 314) warns, "it may turn out that the long run benefits to the society from improving the environment, as it is narrowly conceived, will make life worse for some members of the society now."

Discrimination Against the Poor

For the most part, it is the poor who suffer most from a deteriorated environment — particularly from various forms of urban and industrial pollution. The urban poor often live in the inner city where the housing is unsatisfactory and the air is most heavily polluted (Kruvant, 1974). The beaches, rivers, and lakes that are available to them are most likely to contain industrial discharges. They generally have few opportunities or means to leave the city for weekends in the country, and their daily life exposes them to the effects of automobile exhaust fumes and noise (Krieger, 1970, pp. 313-314). Even the rural poor are more likely to live and work in industrially polluted environments.

In spite of their direct exposure to the effects of environmental deterioration, the poor have generally not become interested or involved in the environmental movement. In part, this is an instance of the phenomenon that Denton Morrison has called "the participation paradox": the people who stand to gain the most from a social reform movement are often least likely to participate in it (Morrison *et al.*, 1972, pp. 270-274; see also Buttell and Flinn, 1973). And in part it is a reflection of another paradox. On the one hand, pollution may be viewed as "a mechanism which redistributes income from the poor to the rich" (Antler, quoted in Kohl, 1972, p. 28); that is, the rich benefit from the processes that produce it while the poor are harmed by it. On the other hand, most of the remedies to environmental problems that have been proposed require the poor to pay a disproportionate share of the costs. Similarly, the poor consume much less energy than the rich, although they pay more per unit. As Newman and Wachtel (1974) have demonstrated, any attempt to curtail energy use by increasing prices affects the poor enormously and the rich hardly at all.

It is frequently noted that the environmental movement is a threat to the poor because its successes would lead to a slowing down of economic growth. "The core issue for all underdogs is equal jobs and equal pay," Morrison reminds us, "and this is threatened by the slowed-growth economy implied in environ-

mentalism" (Morrison, 1973, p. 77). The litigation resulting from the protests of environmentalists has slowed down the construction of new power plants, new airports, and other projects of all kinds — and it is the poor who lose out in jobs (Meier, 1973, p. 217).

Proponents of growth argue that a pro-environment policy does not necessarily imply a no-economic-growth policy, since in time producers can adjust their methods to strong environmental protection regulations (Olson *et al.*, 1973, p. 232). Moreover, it is argued, much of the environmental problem stems from past growth, and it is necessary to continue economic growth (for example, through the introduction of new technologies) in order to clean up the environment. Since the poor are most affected by slum housing, dirty rivers, and polluted air, it is the poor who will also suffer the most from an economic slowdown, insofar as this would mean a discontinuation of efforts to correct these problems (Crosland, 1971, p. 8).

Since a much larger proportion of poor people's income goes toward product purchases than does that of the rich, price increases are often discriminatory. Increased electricity rates resulting from the installation of air pollution abatement equipment and purchases of more expensive clean fuels are one example (Schnaiberg, 1973a, pp. 620-622). Emission control equipment that raises the price of new cars also affects the poor, since these higher prices are eventually echoed in the prices of used cars (Schnaiberg, 1973b, p. 13). Housing for the poor has also been said to be potentially more expensive as a result of environmental improvement, since air pollution depresses the price of housing in industrial areas and its alleviation will lead to an increase in rents (Krieger, 1970, p. 315).

One solution to pollution problems proposed by many economists is to tax firms and industries according to the amount of pollution they create, but critics find few reasons to believe that these pollution taxes would not, like any excise taxes, be passed on to the public through price increases. Accordingly, a pollution tax is generally described as highly regressive, "falling most heavily on those least able to afford it" (England and Bluestone, 1973, p. 194).

It is also claimed that there are what economists call "opportunity costs" — the costs of opportunities foregone — in environmental improvement, and that the effects of these are disproportionately felt by the poor. Zwerdling, for example, points out that the human and financial resources that are applied to environmental improvement (e.g., by middle-class reformers) are thereby not available to alleviate the problems of the poor, such as unequal opportunities and restrictions on civil rights (Zwerdling, 1973, pp. 26-27).

As a result of all these influences — a slowing down of economic growth, price increases, regressive taxation, opportunity costs — environmental improvements are said by critics to be regressive in their distributive effects. They do not just serve to maintain present income differentials: they can also result in these differentials becoming larger (Krieger, 1970, p. 315; Crosland, 1971, p. 3; Schnaiberg, 1974, p. 23).

Capitalism

The relationship between the mode of production in a society — whether it is based on private or public ownership of industries — and the extent of environmental deterioration and pollution that exists in the society is a complex one, only imperfectly understood by economists. There is a fairly substantial polemical literature on the subject, from a wide variety of positions on the political left, ranging from radical to liberal, which says in different ways that capitalism — more than socialism or communism — leads to exploitation and deterioration of the environment. Therefore, the elimination of capitalism and the establishment of some form of socialism are said to be first steps toward solving the environmental problem.

The diagnosis that environmental problems stem from capitalism is of course made more complicated by the fact that in most so-called capitalistic countries a substantial portion of the economy is in the public sector. Nevertheless, critics do not hesitate to place the blame on capitalism. Daniel Zwerdling, for example, sees the behavior of corporations to be the root cause of environmental problems:

Environmentalists will begin to make sense and their movement will survive only if they realize that neither pollution nor poverty nor worker insecurity is a separate problem which can be solved on its own. Pollution, poverty, and worker insecurity reflect three different ways that American corporations express themselves as they exploit people and resources for maximum profit. (Zwerdling, 1973, p. 29)

Sherman and Hunt place the blame squarely on the property rights that are inherent in the capitalist system:

The radical approach does show that to achieve satisfactory solutions to the problems of pollution, there must be some way of drastically reducing the powers of private property and the vested interests. This would, of course, necessitate sweeping changes in the nature of property rights — the very foundation of a capitalistic economy. (Sherman and Hunt, 1972, p. 52)

And Bachrach and Bergman (1973, p. 24) assert that environmentalists often exclude “the possibility that a different series of production and consumption relationships might emerge from substantial political change.” Citing the examples of Cuba and China, they ask “How could radical political upheaval, for example, affect the availability of resources, their distribution, the patterns of production and consumption, and incidentally, the growth of population?”

The thesis that capitalism inherently leads to pollution while socialism does not has been questioned by a number of writers. Peter Drucker, for example, noting that “the bathing beaches for fifty miles around Stockholm have become completely unusable . . . because of the raw, untreated sewage from Communist Leningrad that drifts across the narrow Baltic,” concludes that “‘capitalism’ has nothing to do with the ecological crisis” (Drucker, 1972, p. 68; quoted in Salgo, 1973, p. 27). Marshall Goldman (1970) points out that environmental disruption in the Soviet Union is in places as extensive and severe as in the United States. The major rivers are polluted from the factories along their

banks, he says, and in 1965, when a careless smoker threw his cigarette into the Iset, it caught fire (as had the Cuyahoga River in Cleveland, on another occasion). Oil slicks on the Caspian Sea are said to be drastically curtailing the numbers of sturgeon and thus the availability of caviar, and Lake Baikal — one of the largest and deepest freshwater lakes in the world — is said to have been seriously damaged by the paper and pulp mills on its shores. State socialism, whatever its other virtues, does not, according to Goldman, in and of itself prevent environmental deterioration.¹²

The Poor Nations

The environmental movement is primarily a phenomenon of Western countries, and this review has of course focused on the United States. In addition to being a movement in which many scientists play an active role, it is also a movement that reflects some of the skepticism about the unanticipated effects of science and technology that has surfaced in many industrial societies.

From the point of view of critics in the developing countries of the Third World, the environmental movement — as well as the related calls for a “no-growth” or a steady-state economy — is often perceived as an invitation to remain poor. The criticism of the movement that its membership is elitist finds reflection here in the advocacy of environmental controls by the rich countries, while the criticism that the poor suffer most finds reflection in the assertions that environmental restrictions hamper economic development and restrict international trade (Aaronson, 1972, p. 7). Many of these complaints were expressed by speakers from the Third World at the 1972 UN Conference on the Human Environment. Prime Minister Indira Gandhi (1972, p. 37), for example, in an address that led to a standing ovation, noted that “the rich countries may look upon development as the cause of environmental destruction, but to us it is one of the primary means of improving the environment for living, of providing food, water, sanitation and shelter, of making the deserts green and the mountains habitable.”

Attacks on the environmental movement by critics from the Third World take a number of forms. First, there is strong resistance to controls being imposed from outside; i.e., there is resistance to what is regarded as neocolonialism. Ambassador Ozorio de Almeida (1973, p. 28), who headed the Brazilian delegation to the Stockholm conference, has noted the impossibility of underdeveloped countries accepting internationally agreed ceilings for population and development because of “the underlying assumption that the populations and development levels of developed countries are taken for granted and not liable to

¹² Many of Goldman's statements have been challenged by Mandel (1972), who also points out the existence of what he describes as a very active citizen environmental movement in the Soviet Union.

discussion, change, and corrections." Tang Ke, the chairman of the Chinese delegation to Stockholm, firmly expressed the view that "each country has the right to determine its own environment standards and policies in the light of its own conditions, and no country whatsoever should undermine the interests of the developing countries under the pretext of protecting the environment" (quoted in Aaronson, 1972, p. 4). Indira Gandhi (1972, p. 36), in her address to the conference, summed up her reservations about the advice of development consultants in this way: "On the one hand the rich look askance at our continuing poverty — on the other they warn us against their own methods."

Restrictions on the use of DDT — viewed by many environmentalists as one of the major achievements of the movement — are viewed by some Third World spokesmen as possible controls emanating from outside their country. Such restrictions are regarded as inappropriate in developing countries, since they could "drastically increase malaria and reduce agricultural production in tropical areas" (Ozorio de Almeida, 1973, p. 26; see also Maddox, 1972, p. 137).

Second, critics armed with the knowledge that the bulk of many raw materials — petroleum, copper, tin, nickel, and cobalt, for example — are located in the developing countries, reject the concern over natural resources that characterizes the environmental movement. "Down with Limits to Growth" is the title of an unsigned article in the April 1973 issue of *Development Forum*. "One of the dangers of an exaggerated concern over depletion is that it could come to overshadow a far more important concern," the author says. "Minerals, and the metals that are made from them, are quintessentially the stuff of development" (1973, p. 3).

Third, economic development, rather than leading to environmental destruction, can be viewed as a means to environmental improvement, since "pollution tends to diminish with economic development" (Ozorio de Almeida, 1973, p. 26).

It is not clear what the Ambassador meant by "pollution," or how except for water pollution he could defend his statement. But one participant at Stockholm noted that Third World spokesmen generally avoided discussion of such environmental problems as soil degradation, erosion, deforestation, and the destruction of wildlife, preferring to discuss industrial pollution:

How often have we heard the delegations of these countries affirming in the plenary that the problems of environment did not exist in their countries and that they ardently hoped that they would. In their eyes, such problems essentially took the form of water and air pollution, the classic consequences of industrialization, and for them, synonymous with development. (Harroy, 1974, p. 3)

The criticism that development in the Third World is slowed down by the imposition of controls designed to preserve the environment thus strikes at the heart of the new UN Environmental Secretariat established in Nairobi. In fact, it is because of this criticism that a Third World capital was chosen; the developing countries felt that the program would be tailored more to their interests if it

were located neither in New York nor in Geneva (*Development Forum*, February 1973, p. 16).

The charge that the environmental movement advocates policies that hinder economic development in the poor nations is of course an extension of the allegation that it discriminates against the poor in the United States. This debate is at the heart of the ideological conflict between the environmental movement and its critics: it serves as a dramatic demonstration of the general point that decisions about environmental problems are inseparable from decisions concerning the kind of society we will have in the future.

In the last few years there have been a number of conferences that have brought together environmentalists and their social critics. In November 1972, for example, the Conservation Foundation sponsored a conference in Woodstock, Illinois, on environmental quality and social justice; the subtitle of the conference volume (Smith, 1974) highlights the theme: "An exploration of conflict and concord among those who seek environmental quality and those who seek social justice." In January 1973, the Suburban Action Institute, an organization that seeks to facilitate the movement of blacks and other poor people to suburban communities, sponsored a conference in New York City with the theme of "the environment of the open society," and in June 1974, the Planning and Conservation League held a conference in San Francisco on the theme of "saving our cities — the last wilderness." Ralph Nader was the keynote speaker, talking on "Is the environmental movement relevant to people who live in the city?" On a continuing basis, the Urban Environment Conference, based in Washington, D.C., serves as a coalition of concerned labor, poverty, environmental, church, and ethnic organizations.

This confrontation of ideologies and organizations illustrates the point that in conflicts and debates over what are the proper priorities, over what rights individuals, corporations, and minorities have to enjoy, protect, utilize, or destroy the environment, the quality of life in the society of the future may be largely determined.

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REFERENCES

- Aaronson, T. (1972). World priorities. *Environment* 14(6): 4-13.
- Adler, C. A. (1973). *Ecological Fantasies*, Glen Eagle Press, New York.
- Albrecht, S. L. (1972). Environmental social movements and countermovements: An overview and an illustration. *Journal of Voluntary Action Research* 1(4): 2-11.
- The American People and Their Environment — 1973* (1973). A survey conducted by the J. M. Viladas Company, Greenwich, Conn., for EPA's Office of Public Affairs. Summarized in *Behavioral Sciences Newsletter* (American Institutes for Research) 11(2): 4 (January 18, 1974).
- Anonymous (1970). Ecology Action East. *Rat*, 10 (January 7)
- Anonymous (1973). Down with limits to growth. *Development Forum* (April).
- Anonymous (1974). American Survey. *The Economist (London)*, 45 (March 30).
- Bachrach, P. E., and Bergman, E. (1973). *Power and Choice: The Formulation of American Population Policy*, Lexington Books, Boston.
- Barber, B. (1971). Function, variability, and change in ideological systems. In Barber, B., and Inkeles, A. (eds.), *Stability and Social Change*, Little, Brown, Boston, pp. 244-262.
- Behan, R. W. (1974). The liturgy of the environment. *Worldview*, 27-32 (January).
- Bennett, J. W. (1974). Personal communication.
- Bennett, J. W., Hasegawa, S., and Levine, S. B. (1973). Japan: Are there limits to growth? *Environment* 15(10): 6-13.
- Benoit, E. (1974). Comment. *Society*, 14-25 (March/April).
- Bering, C. (1973). Review. *Environmental Action* 5(14): 14-15.
- Bookchin, M. (1970). Ecology and revolutionary thought. *Motive*, 33-41 (April/May).
- Boulding, K. E. (1970). Fun and games with the gross national product. In Helfrich, H. W., Jr. (ed.), *The Environmental Crisis*, Yale University Press, New Haven.
- Bretsky, S. S. (1974). Ecologists are male chauvinist pigs. *Development Forum* 2(4): 12.
- Brown, L. R. (1970). *Seeds of Change: The Green Revolution and Development in the 1970's*, Praeger, New York.
- Burch, W. R., Jr. (1971). *Daydreams and Nightmares: A Sociological Essay on the American Environment*, Harper and Row, New York.
- Buttell, F. H., and Flinn, W. L. (1973). The structure of support for the environmental movement: 1968-1970. Unpublished paper.
- Carson, R. (1962). *Silent Spring*, Houghton Mifflin, Boston.
- Claus, G., and Bolander, K. (1974). *Ecological Sanity: A Critical Examination of the Bad Science, Good Intentions, and Premature Doomsday Announcements of the Ecology Lobby*, David McKay, New York.
- Coale, A. J. (1970a). Man and his environment. *Science* 170: 132-136.
- Coale, A. J. (1970b). Review of Ehrlich and Ehrlich, *Population, Resources, Environment*. *Science* 170: 428-429.
- Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.) (1973). *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York.
- Commoner, B. (1971). *The Closing Circle*, Knopf, New York.
- Commoner, B. (1972a). A Bulletin dialogue on "The Closing Circle." Response: Barry Commoner. *Bulletin of the Atomic Scientists*, 16-17 (May).
- Commoner, B. (1972b). The environmental cost of economic growth. In Ridker, R. G. (ed.), *Population, Resources, and the Environment*, Vol. 3, Government Printing Office, Washington, D.C.
- Commoner, B. (1972c). Review: "The Closing Circle." *Environment* 14(3): 23-52.
- Cox, J. (1974). Letter to the editor. *New York Times*, 22 (August 12).
- Croslan, A. (1971). *A Social Democratic Britain*, Fabian Society, London.
- Daedalus* (1973). The no-growth society. 102(4): 1-245.
- Daly, H. E. (ed.) (1973). *Toward a Steady-State Economy*, Freeman, San Francisco.
- de Castro, J. (1973). Pollution problem No. 1: Under-development. *Unesco Courier*, 20-23 (January).
- Devall, W. (1970). The governing of a voluntary organization: Oligarchy and democracy in the Sierra Club. Unpublished doctoral dissertation, Department of Sociology, University of Oregon.

- Downs, A. (1972). Up and down with ecology — the “issue-attention cycle.” *Public Interest*, 38-50 (Summer).
- Drucker, P. F. (1972). Saving the crusade. *Harpers* 244: 66-71.
- Dubos, R. J. (1973). Humanizing the earth. *Science* 179: 769-772.
- Ehrlich, P. (1968). *The Population Bomb*, Ballantine, New York.
- Ehrlich, P. (1972). The hysteria against the case. *Arnoldia* 32(5): 226-240.
- Ehrlich, P., and Ehrlich, A. H. (1972). *Population, Resources, Environment: Issues in Human Ecology*, Freeman, San Francisco.
- Ehrlich, P., and Holdren, J. P. (1972a). A Bulletin dialogue on “The Closing Circle.” *Bulletin of the Atomic Scientists* 27(5): 16-17.
- Ehrlich, P., and Holdren, J. P. (1972b). Impact of population growth. In Ridker, R. G. (ed.), *Population, Resources, and the Environment*, Vol. 3, Government Printing Office, Washington, D.C., pp. 365-377.
- Ehrlich, P., and Holdren, J. P. (1972c). Review: “The Closing Circle.” *Environment* 14(3): 24-52.
- England, R., and Bluestone, B. (1973). Ecology and social conflict. In Daly, H. E. (ed.), *Toward a Steady-State Economy*, Freeman, San Francisco, pp. 199-214.
- Epstein, J. (1973). Can we afford sliced eggplant? *The New York Review*, 13-16 (April 5).
- Faich, R. G., and Gale, R. P. (1971). The environmental movement: From recreation to politics. *Pacific Soc. Rev.* 14: 270-287.
- Fischman, L. L., and Landsberg, H. H. (1972). Adequacy of nonfuel minerals and forest resources. In Ridker, R. G. (ed.), *Population, Resources, and the Environment*, Vol. 3, Government Printing Office, Washington, D.C., pp. 77-101.
- Fleming, D. (1972). Roots of the new conservation movement. *Perspectives in American History* 6: 7-91.
- Fuchs, S. (1970). Ecology movement exposed. *Progressive Labor* 7(6): 50-63.
- Gallagher, C. F. (1973). *The Environment in Japan*, The American University Field Staff Reports, East Asia Series, Vol. XX, p. 2.
- Gandhi, I. (1972). The unfinished revolution. *Bulletin of the Atomic Scientists* 28(7): 35-38.
- Goldman, M. I. (1970). The convergence of environmental disruption. *Science* 170: 37-42.
- Grayson, M. J., and Shepard, T. R., Jr. (1973). *The Disaster Lobby: Prophets of Ecological Doom and Other Absurdities*, Follett, Chicago.
- Hardin, G. (1972). Population skeletons in the environmental closet. *Bulletin of the Atomic Scientists*, 37-41 (June).
- Harroy, J. P. (1974). Stop the train, the bridge is down! *Development Forum* 2(3): 3.
- Harry, J., Gale, R., and Hendee, J. (1969). Conservation: An upper-middle class social movement. *Journal of Leisure Research* 1(3): 246-254.
- Hauser, P. M. (1971). Review of Ehrlich, Paul R. and Anne H., “Population, resources, environment: Issues in human ecology.” *Social Biology*, 443-446 (December).
- Hawley, A. H. (1973). Ecology and population. *Science* 179: 1196-1201.
- Holdren, J. P. (1973). Population and the American predicament: The case against complacency. *Daedalus* 102(4): 31-44.
- Hornback, K. E. (1974). Orbita of opinion: The role of age in the environmental movement’s attentive public, 1968-1972. Unpublished doctoral dissertation, Department of Sociology, Michigan State University.
- Horowitz, I. L. (1972). The environmental cleavage: Social ecology versus political economy. *Social Theory and Practice* 2(1): 125-134.
- Huth, H. (1957). *Nature and the American*, University of California Press, Berkeley.
- Jacoby, N. (1970). The environmental crisis. *Center Magazine* 3(6): 37-48.
- Jahoda, M. (1973). Postscript on social change. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of “The Limits to Growth”*, Universe Books, New York, pp. 209-215.
- Johnson, S. (1973). *The Politics of Environment: The British Experience*, Tom Stacey, London.
- Kayser, C. (1972). The computer that printed out W*O*L*F*. *Foreign Affairs* 50(4): 660-668.
- Kifner, J. (1974). Franconia Notch: Highway battle site. *New York Times*, 25 (July 29).

- Kirk, D. (1973). Computerized prophecy: "The Limits to Growth." *Contemporary Psychology* 18(1): 1-3.
- Kirk, D. (1974). Personal communication.
- Klausner, S. Z. (1972). Alienation in ecological perspective. In Bier, W. C. (ed.), *Alienation: Plight of Modern Man?* Fordham University Press, New York, pp. 33-50.
- Kohl, D. (1972). Review of Richard Neuhaus, *In Defense of People*. Unpublished paper.
- Krieger, M. H. (1970). Six propositions on the poor and pollution. *Policy Sciences* 1: 311-324.
- Krieger, M. H. (1973). What's wrong with plastic trees? *Science* 179: 446-455.
- Kruvant, W. J. (1974). Who gets polluted? An investigation of the incidence of air pollution in Washington, D.C. Unpublished paper, Washington Center for Metropolitan Studies, Washington, D.C.
- Landsberg, H. H. (1967). The U.S. resource outlook: Quantity and quality. *Daedalus*, 1034-1057 (Fall).
- Landsberg, H. H. (1974). Materials resources in 1990 and beyond: What will we have left to work with? Unpublished paper, Resources for the Future, Washington, D.C.
- Lowenthal, D. (1970a). Earth day. *Area* 4: 1-10.
- Lowenthal, D. (1970b). The environmental crusade: Ideal and realities. *Landscape Architecture*, 290-296 (July).
- Lowry, R. P. (1971). Toward a radical view of the ecological crisis. *Environmental Affairs* 1(2): 350-359.
- Luten, D. B. (1971). Population growth. In Brown, M. (ed.), *The Social Responsibility of the Scientist*, Free Press, New York, pp. 184-197.
- Luten, D. B. (1973). Fading away? *Western Outdoors Annual* 40: 8-12.
- MacLeish, A. (1971). Quoted in Neuhaus, R., *In Defense of People*, Macmillan, New York, p. 72.
- Maddox, J. (1972). *The Doomsday Syndrome*, McGraw-Hill, New York.
- Mandel, W. M. (1972). The Soviet ecology movement. *Science & Society* 36(4): 385-416.
- Marcuse, P. (1974). Quoted in a leaflet announcing the Planning and Conservation League's Conference, "Saving Our Cities: The Last Wilderness," held in San Francisco, June 8, 1974.
- Marstrand, P. K., and Pavitt, K. L. R. (1973). The agricultural sub-system. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York, pp. 56-65.
- Marx, L. (1964). *The Machine in the Garden: Technology and the Pastoral Ideal in America*, Oxford University Press, New York.
- Marx, L. (1970). American institutions and ecological ideals. *Science* 170: 945-952.
- Mazur, A. (1973a). Disputes between experts. *Minerva* 11(2): 243-262.
- Mazur, A. (1973b). Personal communication.
- McCarthy, J. D., and Zald, M. N. (1973). *The Trend of Social Movements in America: Professionalization and Resource Mobilization*, General Learning Press, Morristown, N.J.
- McEvoy, J., III (1972). The American concern with environment. In Burch, W. R., Jr., Cheek, N. H., Jr., and Taylor, L. (eds.), *Social Behavior, Natural Resources, and the Environment*, Harper and Row, New York, pp. 214-236.
- McKean, R. N. (1973). Growth vs. no growth: An evaluation. *Daedalus* 102(4): 207-227.
- McPhee, J. (1972). *Encounters with the Archdruid*, Ballantine, New York.
- Mead, M. (1973). Personal communication.
- Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W. W., III (1972). *The Limits to Growth*, Universe Books, New York.
- Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W. W., III (1973). A response to Sussex. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York, pp. 217-240.
- Meier, R. L. (1973). The other side of pollution. In Pohlman, E. (ed.), *Population: A Clash of Prophets*, New American Library, New York, pp. 204-223.
- Mishan, E. J. (1970). *Technology and Growth: The Price We Pay*, Praeger, New York.

- Mishan, E. J. (1973). Ills, bads, and disamenities: The wages of growth. *Daedalus* 102(4): 63-87.
- Morrison, D. E. (1973). The environmental movement: Conflict dynamics. *Journal of Voluntary Action Research* 2(2): 74-85.
- Morrison, D. E., Hornback, K. E., and Warner, W. K. (1972). The environmental movement: Some preliminary observations and predictions. In Burch, W. R., Jr., Cheek, N. H., Jr., and Taylor, L. (eds.), *Social Behavior, Natural Resources, and the Environment*, Harper and Row, New York, pp. 259-279.
- Morrison, D. E., Hornback, K. E., and Warner, W. K. (compilers) (1974). *Environment: A Bibliography of Social Science and Related Literature*, U. S. Environmental Protection Agency, Washington, D.C.
- Munson, B. E. (1972). The ecology movement: An assessment. Unpublished paper, Department of Sociology, Eastern Illinois University.
- Nash, R. (1973). *Wilderness and the American Mind*, rev. ed., Yale University Press, New Haven (first published in 1967).
- Neuhaus, R. (1971). *In Defense of People: Ecology and the Seduction of Radicalism*, Macmillan, New York.
- Newman, D. K., and Wachtel, D. D. (1974). Energy, the environment, and the poor. Unpublished paper, Washington Center for Metropolitan Studies, Washington, D.C.
- Notestein, F. W. (1970). Personal communication.
- Novick, S. (1974). Personal communication.
- Olson, M., Landsberg, H. H., and Fisher, J. L. (1973). Epilogue. *Daedalus* 102(4): 229-241.
- Oltmans, W. L. (1974). *On Growth: The Crisis of Exploding Populations and Resource Depletion*, Putnam, Boston.
- Ozorio de Almeida, M. A. (1973). The myth of ecological equilibrium. *Unesco Courier*, 25-28 (January).
- Paddock, W., and Paddock, P. (1967). *Famine — 1975!* Little, Brown, Boston.
- Page, W. (1973). The population sub-system. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York, pp. 43-55.
- Passell, P., and Ross, L. (1971). Review of Richard Neuhaus' "In Defense of People," *New York Times Book Review* 6: 16 (October 17).
- Passell, P., and Ross, L. (1973). *The Retreat from Riches: Affluence and Its Enemies*, Viking, New York.
- Passmore, J. (1974). *Man's Responsibility for Nature: Ecological Problems and Western Traditions*, Scribners, New York.
- Pavitt, K. L. R. (1973). Malthus and other economists: Some doomsdays revisited. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York.
- Pole, N. (1973). An interview with Paul Ehrlich. *The Ecologist* 3(1): 18-24.
- Quarles, J. R., Jr. (1973). A test of our commitment. *Environmental News*, 1-8 (November).
- Quigg, P. W. (ed.) (1973). *World Directory of Environmental Education Programs*, Bowker, New York.
- Quigg, P. W. (1974). Of conservationists and their critics. *Saturday Review/World*, 35 (June 1).
- Reich, M., and Huddle, E. G. (1973). Pollution and social response. *Area Development in Japan* 7: 34-47.
- Ridker, R. G. (1973). To grow or not to grow: That's not the relevant question. *Science* 182: 1315-1318.
- Robinson, W. C. (1969). A critical note on the new conservatism. *Land Economics* 42: 453-456.
- Salgo, H. (1973). The obsolescence of growth: Capitalism and the environmental crisis. *Review of Radical Political Economics* 5(3): 26-45.
- Schnaiberg, A. (1973a). Politics, participation, and pollution: The environmental movement. In Walton, J., and Carns, D. E. (eds.), *Cities in Change: Studies on the Urban Condition*, Allyn and Bacon, Boston, pp. 605-627.
- Schnaiberg, A. (1973b). Social conflicts in environmental decisions. Unpublished paper, Department of Sociology, Northwestern University.

- Schnaiberg, A. (1974). The first and last dialectic: Social impacts of environmental quality and societal scarcity. Unpublished paper, Department of Sociology, Northwestern University.
- Schultz, T. W. (1972). The ecosystem doom. *Bulletin of the Atomic Scientists*, 12-17 (April).
- Shepard, P., and McKinley, D. (eds.) (1969). *The Subversive Science: Essays Toward an Ecology of Man*, Houghton Mifflin, Boston.
- Sherman, H., and Hunt, E. K. (1972). Pollution in radical perspective. *Business and Society Review* 3: 48-53.
- Simcock, B. L. (1972). Environmental pollution and citizens' movement: The social sources and significance of anti-pollution protest in Japan. *Area Development in Japan* 5: 13-22.
- Sinclair, T. C. (1973). Environmentalism: A la recherche du temps perdu — bien perdu? In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York, pp. 175-191.
- Smith, C., and Freedman, A. (1972). *Voluntary Associations: Perspectives on the Literature*, Harvard University Press, Cambridge, Mass.
- Smith, D. H. (1973). Methodology of the study "Profile of the environmental movement." In Zinger, C., Dalsemer, R., and Magargle, H. (eds.), *Environmental Volunteers in America*, Environmental Protection Agency, PB 214 186, Washington, D.C., pp. 508-555.
- Smith, J. N. (ed.) (1974). *Environmental Quality and Social Justice in Urban America*, Conservation Foundation, Washington, D.C.
- Sprout, M., and Sprout, H. (1971). *Ecology and Politics in America: Some Issues and Alternatives*, General Learning Press, New York.
- Stone, P. B. (1973). *Did We Save the Earth at Stockholm?* Earth Island, London.
- Surrey, A. J., and Bromley, A. J. (1973). Energy resources. In Cole, H. S. D., Freeman, C., Jahoda, M., and Pavitt, K. L. R. (eds.), *Models of Doom: A Critique of "The Limits to Growth,"* Universe Books, New York, pp. 192-208.
- Train, R. E. (1974). Remarks before the Pennsylvania Environmental Council, Philadelphia, Pennsylvania. *Environmental News*, 3-11 (April).
- Trop, C., and Roos, L. L., Jr. (1971). Public opinion and the environment. In Roos, L. L., Jr. (ed.), *The Politics of Ecosuicide*, Holt, Rinehart and Winston, New York, pp. 52-63.
- Wallich, H. (1972). Zero growth. *Newsweek* 79: 62 (January 24).
- Weisberg, B. (1971). *Beyond Repair: The Ecology of Capitalism*. Beacon Press, Boston.
- Weisberg, B. (1972). The browning of Stockholm: America takes its ecology show abroad. *Ramparts*, 33-40 (September).
- Wharton, C. R., Jr. (1969). The green revolution: Cornucopia or Pandora's box? *Foreign Affairs* 47: 464-476.
- White, L., Jr. (1969). The historical roots of our ecologic crisis. *Science* 155: 1203-1207.
- Whyte, W. H. (1968). *The Last Landscape*, Doubleday, New York.
- Zinger, C. L., Dalsemer, R., and Magargle, H. (1973). *Environmental Volunteers in America*, Environmental Protection Agency, PB 214 186, Washington, D.C.
- Zwerdling, D. (1973). Poverty and pollution. *The Progressive* 37(1): 25-29.
- Zwerling, S. (1973). Bart. *Environment* 15(10): 14-19.